

REMARKS

By the foregoing Amendment, Claims 1 and 23 are amended. Claims 1-44 remain pending. Entry of the Amendment, and favorable consideration thereof is earnestly requested.

Claim 1-22 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 1 has been amended to obviate this rejection. Claims 1 and 23 have also been amended to positively recite the light source to address the Examiner's concern in Paragraph 9 of the outstanding Office Action, which states that: "In addition, the applicant is reminded that the particular light source in claims 1 and 23 is not even part of the invention."

The Examiner has rejected all claims under 35 U.S.C. §103 as being unpatentable primarily over Iacovelli (U.S. Patent No. 5, 350,391) in view of Gain (U.S. Patent No. 3,840,015). Applicant respectfully requests that the Examiner reconsider this rejection in view of the above Amendments and the below Remarks.

In Paragraphs 5 and 9 the Examiner remarks that the selection of the light source is a simple design choice. Applicant respectfully disagrees for the following reasons.

The very nucleus of the invention is making a weakly fluorescing tissue or tumor-specific photosensitizer, as well as an endoscopic instrument, visible. In systems according to the state of the art this problem is solved by providing two different light sources, one being configured to make the endoscopic instrument visible while the other one is configured to make the autofluorescing tissue or the photosensitizer visible. The need to switch between these two light sources forces the eyes of the operator to adjust to different conditions several times in a short period of time, which is tiring for the operator.

The Examiner argues that the modified Iacovelli luminescent markings would perform equally well with the selected light source. This is not the case. Iacovelli describes a laparoscopic instrument that carries markings to indicate how deeply the blades of the instrument have cut into the tissue.

Iacovelli does not describe the presence of autofluorescing tissue or tumor-specific photosensitizers. Would one use the claimed light source of the pending application to illuminate an instrument as described by Iacovelli one might be able to see fluorescent markings. However, since the tissue is not fluorescing it would become very difficult to see the tissue being operated on.

If, for example, a blue light source is used to induce fluorescence, non-fluorescent tissue which is usually red will only reflect a very small amount of the blue light emitted by the light source so that it would appear dark, with very little contrast.

Also, if a light source with a very narrow emission spectrum is used, virtually all color information visible under white light would be lost. So it would be very hard to see any tissue that is not showing tissue autofluorescence or that contains a tumor photosensitizer.

Another point is that the human vision is in large part based on receptors in the eye called rods. These rods are color-sensitive receptors and are classed in three different groups. This classification is based on the absorption maxima those rods are showing. So if one is using a light source with a very narrow emission spectrum it is likely that only one group of rods is stimulated. That means that the human eye is only working at a third of its efficiency.

In the combination of all claims of the pending application this is compensated for by the fact that the fluorescing markings and the auto-fluorescing tissue are reflecting light of a different spectrum. This only happens in a fluorescence phenomenon, if an object simply reflects color the reflected wavelength is the same as the irradiation wavelength. Therefore, the fluorescence creates

additional color information and stimulates more or different groups of rods in the human eye.

Therefore, for the pending application three things must be combined: autofluorescing tissue or a photosensitizer, a light source to emit light of a narrow frequency spectrum, and the fluorescent markings on the endoscopic instrument. This combination is not disclosed, taught or suggested by any of the cited prior art, either alone or in combination.

For the foregoing reasons, Applicant respectfully submits that all pending claims, namely Claims 1-44, are patentable over the references of record, and earnestly solicits allowance of the same.

Respectfully submitted,



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